

I Claim:

1. A contour-cutting machine, which is particularly suited  
5 for cutting foam, comprising:

a workpiece table defining a longitudinal direction  
(X-direction) and having an upper side for supporting  
workpieces and a pair of first and second vertical sides,  
a table gap extending transversely (Y-direction) to said  
longitudinal direction between said pair of vertical  
sides;

10 X-direction driving means for moving workpieces on  
said upper table side in said longitudinal direction (X)  
across said table gap;

15 a stationary frame arranged to enclose said  
workpiece table in the vicinity of said table gap;

a movable cutting-element carrier defining a quad  
and having an open side and an opposite side, said  
cutting-element carrier supporting a plurality of  
pulleys;

20 an endless cutting element mounted on said pulleys  
and passing through said table gap at said open side of  
said cutting-element carrier;

25 Z-direction driving means for driving said cutting  
element in a vertical direction (Z-direction) along said  
open side through a cutting region for said workpieces;

first means for supporting and guiding said  
cutting-element carrier near said open side thereof in  
said transverse direction (Y) along said table gap;

30 Y-direction driving means for driving said cutting-  
element carrier at said open side thereof in said  
transverse direction (Y), and

second means for supporting and guiding said cutting-element carrier near said opposite side thereof along said first vertical side of the table in said longitudinal direction.

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2. The contour-cutting machine of claim 1 wherein said first supporting and guiding means comprises a pair of first rails extending respectively above and below said table gap and being fixed onto said stationary frame, and

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a pair of first carriages guided by said pair of first rails and being connected to said cutting element carrier at said open side thereof for being driven at the same speeds and to the same extent in the transverse direction of the table by said Y-direction driving means.

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3. The contour-cutting machine of claim 1 wherein said second supporting and guiding means comprises

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an upright having an upper end and a lower end, a pair of second stationary rails being located along said first vertical side of the workpiece table near said upper end and said lower end of said upright, and

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a pair of second carriages being guided along said pair of second rails;

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said second carriages being connected to said cutting-element carrier at said opposite side thereof for carrying said opposite side of said cutting-element carrier along said first vertical side of the workpiece table.

4. The contour-cutting machine of claim 1  
wherein said cutting-element carrier comprises:  
    four corner members and at least an upper bar and a  
    lower bar,  
5        said plurality of pulleys including two upper  
    pulleys and two lower pulleys, each corner member  
    mounting and journalling one of said pulleys;  
    said corner members being arranged according to a  
    rectangle including two upper corner members and two  
    lower corner members,  
10        said upper corner members being connected to one  
    another by said upper bar and said lower corner members  
    by said lower bar, so as to define each a predetermined  
    distance between said upper pulleys or said lower  
    pulleys.

15 5. The contour-cutting machine of claims 2 and 3  
    wherein said cutting-element carrier comprises  
        a pair of first pivot bearings and a pair of second  
    20        pivot bearings,  
        said first bearings being connected to said first  
    carriages and said second bearings to said second  
    carriages.

25 6. The contour-cutting machine of claim 1  
    wherein the cutting element is a band knife, the machine  
    also comprising a knife-rotating device for adjusting  
    said band knife in a desired plane of movement through  
    the table gap, said knife-rotating device being supported  
    30        by said stationary frame.

7. The contour-cutting machine of claim 6 also comprising  
a top knife-rotating head which is a part of said  
knife-rotating device, and  
third means for supporting and guiding said top  
5 knife-rotating head in transverse direction (Y), said  
third supporting and guiding means being arranged  
between, and extending parallel to said first and second  
supporting and guiding means and being vertically  
adjustable in distance to said upper side of said  
10 workpiece table.

8. The contour-cutting machine of claim 7  
also comprising supporting rollers for holding down and  
stabilizing the workpiece being cut, said rollers being  
15 carried by said top knife-rotating head.

9. The contour-cutting machine of claim 5  
wherein said pivot bearings at said open side of said  
cutting-element carrier and said knife-rotating device  
20 define an axis, said band knife having a cutting edge,  
said axis of said knife-rotating device extending through  
said cutting edge of said band knife.

10. The contour-cutting machine of claim 6  
25 wherein said movable cutting-element carrier has a pair  
of corner members at said opposite side, the machine also  
comprising  
a grinding apparatus for the band knife mounted on  
one of said corner members, and  
30 a tensioning device for the band knife mounted on  
said other one of said corner members.